

# Mineral Industry Surveys

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## SULFUR IN SEPTEMBER 2006

During the month, production of recovered elemental sulfur was 707,000 metric tons (t), according to the U.S. Geological Survey. September 2006 production was 4% lower than that of August 2006 and 12% higher than that of September 2005. Shipments were about the same as in August 2006. Producers' ending stocks for September 2006 were 168,000 t.

Sulfur production at petroleum refineries has nearly recovered to the level experienced before two major hurricanes struck the Gulf Coast in August and September 2005, but major upgrades at BP p.l.c.'s Texas City, TX, refinery have limited sulfur production there while the sulfur recovery units are being refurbished (North American Sulphur Review, 2006). Acid gas reinjection at a large natural gas operation in Wyoming and decreased production at other operations reduced sulfur production from gas processing by 23% from that of September 2005. Production from refineries is expected to continue to increase, but recovery from natural gas operations is not predicted to increase significantly.

Import and export data for September 2006 were not available at the time of publication and will be published in the Sulfur in October 2006 Mineral Industry Surveys along with apparent consumption. Imports of recovered sulfur for August 2006 were estimated to be 274,000 t; exports were 15,000 t. Imports of sulfuric acid for August 2006 were 245,000 t; exports were 37,000 t.

Significant adjustments have been made to the sulfur import data. Reports from the U.S. Census Bureau appear to underreport sulfur imports, especially material from Canada. The revised figures are based on Census information and data from personal communications with industry experts.

### Reference Cited

North American Sulphur Review, 2006, Supply: North American Sulphur Review, v. 17, no. 9, September, p. 3.

TABLE 1  
SALIENT SULFUR STATISTICS<sup>1</sup>

(Thousand metric tons)

Period	Production			Shipments, all sources	Ending stocks <sup>3</sup>
	Petroleum <sup>2</sup>	Natural gas	Total		
2005:					
January-December	6,940	1,810	8,750	8,720	XX
January-September	5,310	1,420	6,730	6,720	XX
September	489	141	630	634	165
October	478	136	614	614	158
November	555	129	683	671	167
December	593	120	714	721	156
2006:					
January	572	114	686	677	160
February	513	114	627	632	151
March	544	112	656	660	142
April	546 <sup>r</sup>	120	667 <sup>r</sup>	648 <sup>r</sup>	162 <sup>r</sup>
May	591 <sup>r</sup>	119	711 <sup>r</sup>	701 <sup>r</sup>	164 <sup>r</sup>
June	586	97 <sup>r</sup>	683 <sup>r</sup>	694	149 <sup>r</sup>
July <sup>f</sup>	600	120	720	695	172
August <sup>r</sup>	618	121	738	722	184
September <sup>p</sup>	598	109	707	723	168
Total	5,170	1,030	6,200	6,150	XX

<sup>p</sup>Preliminary. <sup>r</sup>Revised. XX Not applicable.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes a small quantity from coking operations.

<sup>3</sup>Subject to inventory adjustments.

TABLE 2  
U.S. IMPORTS OF SULFUR<sup>1</sup>

(Thousand metric tons and thousand dollars)

Period	Canada		Mexico		Venezuela		Total, all countries <sup>2</sup>	
	Quantity <sup>e</sup>	Value <sup>3</sup>	Quantity	Value <sup>3</sup>	Quantity <sup>e</sup>	Value <sup>3</sup>	Quantity <sup>e</sup>	Value <sup>3</sup>
2005:								
January-December	1,970	33,500	427	18,600	409	16,800	2,820	70,500
January-August	1,260	18,900	281	12,100	270	10,500	1,860	42,200
August	170	2,820	20	808	31	1,280	221	5,040
September	160	3,020	39	1,600	41	1,670	241	6,360
October	185	3,570	44	1,900	37	1,620	227	7,770
November	180	3,680	29	1,130	20	819	233	5,710
December	185	4,360	34	1,890	41	2,180	261	8,500
2006:								
January	165	4,190	58	2,520	37	1,680	260	8,460
February	150	3,910	43	1,810	40	1,650	233	7,450
March	165	3,970	44	2,010	34	1,580	243	7,690
April	205	4,290	29	1,420	30	1,410	264	7,230
May	210	3,260	29	1,390	19	925	259	5,820
June	205	2,550	44	1,970	29	1,270	281	6,120
July	210	2,370	43	1,900	33	1,370	286	5,730
August	210	2,330	43	1,770	20	824	274	4,940
Total	1,520	26,900	334	14,800	242	10,700	2,100	53,400

<sup>e</sup>Estimated.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include other countries not listed.

<sup>3</sup>Declared customs valuation.

Sources: U.S. Census Bureau data as adjusted by U.S. Geological Survey and PentaSul North America Sulphur Service.

TABLE 3  
U.S. IMPORTS OF SULFURIC ACID<sup>1</sup>

(Thousand metric tons and thousand dollars)

Period	Canada			Mexico			Total, all countries <sup>2</sup>		
	Quantity	Sulfur content	Value <sup>3</sup>	Quantity	Sulfur content	Value <sup>3</sup>	Quantity	Sulfur content	Value <sup>3</sup>
2005:									
January-December	2,000	656	80,700	398	129	7,920	2,660	871	102,000
January-August	1,350	442	52,100	237	77	4,390	1,760	575	66,000
August	156	51	6,490	19	6	350	196	64	9,150
September	169	55	6,890	35	11	626	241	79	8,260
October	178	58	7,880	60	20	1,730	253	83	11,600
November	138	45	5,910	38	12	674	181	59	6,820
December	172	56	7,910	28	9	504	229	75	9,640
2006:									
January	194	63	7,800	16	5	444	244	80	9,030
February	161	53	6,550	23	7	416	201	66	7,670
March	198	65	7,760	19	6	454	255	83	9,050
April	207	68	7,910	16	5	400	234	77	9,100
May	207	68	7,840	13	4	307	229	75	8,320
June	189	62	7,030	2	1	56	208	68	7,860
July	181	59	6,290	7	2	157	228	74	6,900
August	212	69	7,330	22	7	624	245	80	8,070
Total	1,550	507	58,500	118	38	2,860	1,840	603	66,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include other countries not listed.

<sup>3</sup>Declared customs valuation.

Source: U.S. Census Bureau.

TABLE 4  
U.S. EXPORTS OF SULFUR AND SULFURIC ACID<sup>1</sup>

(Thousand metric tons and thousand dollars)

Period	Sulfur		Sulfuric acid		
	Quantity	Value <sup>2</sup>	Quantity	Sulfur content	Value <sup>2</sup>
2005:					
January-December	683	55,900	348 <sup>r</sup>	108	29,500
January-August	436	36,700	246	76	20,100
August	71	5,330	25	8	2,600
September	42	3,470	26	8	2,810
October	104	7,070	32	10	3,020
November	14	2,940	7	2	992
December	87	5,790	37	12	2,560
2006:					
January	55	4,430 <sup>r</sup>	14	4	1,400
February	15	1,900 <sup>r</sup>	38	12	2,400
March	68	4,710 <sup>r</sup>	23	8	2,000 <sup>r</sup>
April	11	1,270 <sup>r</sup>	19	6	1,600
May	19	2,090 <sup>r</sup>	17	5	1,400
June	141	8,790 <sup>r</sup>	11	4	1,370 <sup>r</sup>
July	79	4,540 <sup>r</sup>	18	6	2,030
August	15	2,380	37	12	2,280
Total	404	30,100	176	58	14,500

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Declared f.a.s. (free alongside ship) valuation.

Source: U.S. Census Bureau.

TABLE 5  
U.S. CONSUMPTION OF SULFUR<sup>1</sup>

(Thousand metric tons)

Period	Domestic sources <sup>2</sup>	Imports <sup>c</sup>	Consumption
2005:			
January-December	8,040 <sup>r</sup>	2,820 <sup>r</sup>	10,900
January-August	5,650	1,860	7,500
August	741	221	962
September	592	241	833
October	510	227	737
November	657	233	890
December	634	261	895
2006:			
January	622	260	882
February	617	233	850
March	592	243	835
April	637 <sup>r</sup>	264	901 <sup>r</sup>
May	682 <sup>r</sup>	259	941 <sup>r</sup>
June	553	281	834
July	616 <sup>r</sup>	286	902 <sup>r</sup>
August	707	274	981
Total	5,030	2,100	7,130

<sup>c</sup>Estimated. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Calculated as shipments minus exports.

TABLE 6  
RECOVERED SULFUR PRODUCED AND SHIPPED IN THE UNITED STATES,  
BY PAD (PETROLEUM ADMINISTRATION FOR DEFENSE) DISTRICT<sup>1</sup>

(Thousand metric tons)

District and source	September 2006 <sup>p</sup>		August 2006		January - September 2006 <sup>2</sup>		January - September 2005 <sup>2</sup>	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
PAD 1:								
Petroleum and coke	15	14	21	20	175	173	191 <sup>r</sup>	191 <sup>r</sup>
Natural gas	8	8	1	1	19	19	14 <sup>r</sup>	14 <sup>r</sup>
Total	23	22	23	21	194	192	206 <sup>r</sup>	205 <sup>r</sup>
PAD 2:								
Petroleum and coke	91	91	94	95	776	779	798 <sup>r</sup>	800 <sup>r</sup>
Natural gas	3	3	4	4	29	29	27	27
Total	94	94	97	99	805	808	825 <sup>r</sup>	827 <sup>r</sup>
PAD 3: <sup>3</sup>								
Petroleum and coke	368	388	389	371	3,200	3,190	3,310 <sup>r</sup>	3,320 <sup>r</sup>
Natural gas	33	34	40 <sup>r</sup>	41 <sup>r</sup>	335	335	373	375
Total	401	422	429 <sup>r</sup>	411 <sup>r</sup>	3,540	3,530	3,680 <sup>r</sup>	3,690 <sup>r</sup>
PAD 4 and 5: <sup>4</sup>								
Petroleum and coke	125	120	114	113 <sup>r</sup>	1,020	981	1,020 <sup>r</sup>	984
Natural gas	64	65	76	78	643	647	1,010 <sup>r</sup>	1,010 <sup>r</sup>
California	108	103	92	91	842	811	806	772
Total	189	185	190 <sup>r</sup>	191	1,660	1,630	2,030 <sup>r</sup>	1,990 <sup>r</sup>
Grand total	707	723	738 <sup>r</sup>	722 <sup>r</sup>	6,300	6,150	6,730 <sup>r</sup>	6,720 <sup>r</sup>

<sup>p</sup>Preliminary. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revisions.

<sup>3</sup>Includes the U.S. Virgin Islands.

<sup>4</sup>Quantities produced and shipped in California included in petroleum and natural gas. California total shown for information purposes only.

TABLE 7  
COMPARATIVE SULFUR AND SULFURIC ACID STATISTICS<sup>1</sup>

(Million metric tons per year [annualized basis] and dollars per metric ton for period shown)

	2006			2005
	September	August	Total	total
Production	8.60 <sup>p</sup>	8.69 <sup>r</sup>	8.28 <sup>r</sup>	8.75
Shipments	8.80 <sup>p</sup>	8.50 <sup>r</sup>	8.23 <sup>r</sup>	8.72
Exports of sulfur	NA	0.18	0.61	0.58
Imports of sulfur:				
Canada	NA	2.47 <sup>e</sup>	2.28 <sup>e</sup>	1.97 <sup>e</sup>
Mexico	NA	0.51	0.50	0.45
Venezuela	NA	0.24 <sup>e</sup>	0.36 <sup>e</sup>	0.41 <sup>e</sup>
Total <sup>2</sup>	NA	3.23 <sup>e</sup>	3.15 <sup>e</sup>	2.79 <sup>e</sup>
Exports of H <sub>2</sub> SO <sub>4</sub>	NA	0.44	0.26	0.31
Imports of H <sub>2</sub> SO <sub>4</sub> :				
Canada	NA	2.50	2.33	1.87
Mexico	NA	0.26	0.18	0.40
Total <sup>2</sup>	NA	2.88	2.77	2.66
Consumption: <sup>3</sup>				
Domestic sources	NA	8.32	7.55	8.06
Imports	NA	3.23 <sup>e</sup>	3.15 <sup>e</sup>	2.79 <sup>e</sup>
Total	NA	11.55	10.70	10.85
Sulfur export values <sup>4</sup>	NA	159	75	84
Sulfur import values: <sup>4</sup>				
Canada	NA	11	18	17
Mexico	NA	41	44	41
Venezuela	NA	41	44	41
Average <sup>2</sup>	NA	18	25	25
H <sub>2</sub> SO <sub>4</sub> export values <sup>4</sup>	NA	61	82	86
H <sub>2</sub> SO <sub>4</sub> import values: <sup>4</sup>				
Canada	NA	35	38	40
Mexico	NA	28	24	20
Average <sup>2</sup>	NA	33	36	37

<sup>e</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. NA Not available.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes other countries not listed.

<sup>3</sup>Because September trade data were not available, September consumption was not determined.

<sup>4</sup>Average value per ton for most recent data available.